

ENTOMOLOGICAL ABSTRACTS

Sex Determination in Trialeurodes.—Stoll and Shull (1919, *Genetics*, 4:251-260) have investigated the previously reported statement that in *Trialeurodes (Aleurodes) vaporariorum* the parthenogenetic eggs produce females in the English representatives of the species and males in those occurring in the United States, and that fertilized eggs produce both sexes in equal numbers. A series of carefully planned breeding experiments with American stock indicated that the unfertilized eggs do produce males, but there was no evidence for the belief that the fertilized ones result in both males and females in equal numbers. Instead, the evidence supports the conclusion that all fertilized eggs produce females, thus corresponding with the case of the honey bee.

Pentatomoidea.—Hart (1919, *Bull. Nat. Hist. Surv., Illinois*, 13:157-223) has summarized the *Pentatomoidea* of Illinois and constructed keys to the Nearctic genera, thus presenting a very useful and important work on this group of Hemiptera. This paper is exclusively systematic in nature and has much to commend itself to workers in entomology.

Canadian Bark-beetles.—Swaine (1918, *Dep't Agr., Dominion of Canada, Entomological Branch, Bull.* 14) has published a treatise on "Canadian Bark-beetles" which makes readily available much important data on Canadian *Scolytidae*. An extensive account is given of the structure and general biological features of these insects, followed by descriptions of the various species concerned accompanied by keys for the identification of the same. Thirty-one plates and four text figures add much to the value of the paper. Owing to the nature of the paper it is not readily summarizable but it is a work worthy of commendation and is indispensable to students of Coleoptera.

Drosophila and Disease.—Sturtevant (1918, *Journ. Parasitology*, 5:84-85) reviews the circumstantial evidence that flies of the genus *Drosophila* may be carriers of disease. In the tropics *D. repleta* and *D. caribbea* have habits which place them under strong suspicion, but contrary to the meager literature on this subject, there seems to be little reason for regarding *D. melanogaster (ampelophila)* as particularly dangerous.

Nematode Parasite of Sciara—Hungerford (1919, *Journ. Parasitology*, 5:186-192) reports certain biological features of a nematode,

Tetradonema plicans, which parasitizes the mycetophilid fly, *Sciara coprophila*, in the larval, pupal, and adult stages. From two or twenty nematodes representing both sexes were found in a single host. A striking sexual dimorphism is manifested, the females reaching a length of 5 mm. while the males are less than 1 mm. long. Likewise the sexually mature female is characteristically swollen about midway between the anterior and posterior end, due to accumulation of great numbers of eggs "beneath the cuticula, which serves as a retaining capsule." It seems probable that the parasite gains entrance into the host by the latter swallowing the eggs of the nematode, the eggs hatching and the young parasites boring through the walls of the alimentary canal into the body cavity of the larva. There is no evidence of an alternate host in the life cycle. In connection with the copulation activities as many as four males may become attached to one female and so remain until the female completes her egg capsule and dies. A maximum of 5,520 eggs per female is recorded.

Propleura of Orthoptera.—Du Porte (1919, Can. Ent., 51:147-153) has made morphological studies of representatives of the principal orthopteran families in investigating the problem of the presence or absence of the propleura and the significance of the pronotal sulci. Evidence secured indicates that the propleurum has not been eliminated by the downgrowth of the pronotum but persists on the inner side of the latter which has descended over it. The typical pleural sclerites are present and possess a musculature similar to the homologous sclerites on the mesopleurum and metapleurum. The sulci are mere folds resulting from mechanical stresses and do not mark off areas homologous to the prescutum, scutum, scutellum and postscutellum in the other thoracic segments. It is therefore claimed that these terms should not be applied to the pronotal areas.

Grylloblatta campodeiformis.—Walker (1919, Can. Ent., 51:131-139) reports on seven additional specimens of the remarkable orthopteroid insect, *Grylloblatta campodeiformis*, one of which is a mature male and four are nymphs representing both sexes. Males and nymphs are described for the first time and important morphological data are presented. The genitalia have been given critical examination since the phylogeny of this insect is of particular interest. The opinion is expressed that the "Panisoptera" (which includes the

Blattoidea, Mantoidea, and Isoptera) and the Orthoptera represent two branches from the same stem and that *Grylloblatta* is the sole survivor of a branch "which separated from this stem before the two main branches had become differentiated."

Staining Coccidae.—Gage (1919, Ent. News, 30:142-144) has found a method for permanently staining the exoskeleton of scale insects. After trials with several stains, it was found that säuerfuchsin gave best results but had the serious disadvantage of fading after a time, due to the alkali remaining in the tissues from the KOH cleaning fluid. This difficulty was eliminated by introducing hydrochloric acid to form an excess and mounting in acid balsam. The following formula represents the most satisfactory proportions of the ingredients:

Säuerfuchsin.....	0.5 gram
10 per cent hydrochloric acid.....	25.0 cc.
Distilled water.....	300.0 cc.

Remove specimens to be stained from the KOH and wash thoroughly in three or four changes of distilled water; place in Syracuse watch-glass containing a few cubic centimeters of the staining fluid and leave for from 20 to 40 minutes; remove and use subsequent treatment ordinarily employed in preparing scale insects. Care should be used that the specimens remain in such liquids as carbol-xylene, clove oil, or alcohol long enough to insure the complete clearing or dehydration.

Olfactory Sense in Larvae.—McIndoo (1919, Ann. Ent. Soc. Am., 12:65-84) presents morphological and experimental data on the presence of an olfactory sense in the larvae of Lepidoptera. The larvae of five species, four moths and one butterfly, were tested with a variety of substances giving odors and, in general, found to respond to such chemical stimuli although differences in the average reaction times seemed to depend upon the degree of sluggishness of the animal rather than specific sensitiveness to the odors. Pores, widely distributed on the head and its appendages, legs, dorsal surfaces of prothorax and last abdominal segment, and on the anal prolegs are structurally well adapted to receive chemical stimuli and may constitute the morphological basis for the olfactory response of the animal although experiments were not performed to determine their exact function.

Department of Zoology,
University of Michigan.

PAUL S. WELCH.